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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/501,279	07/09/2004	Sergel Molokov	15892.25	5679
22913	7590	09/20/2007		
WORKMAN NYDEGGER 60 EAST SOUTH TEMPLE 1000 EAGLE GATE TOWER SALT LAKE CITY, UT 84111			EXAMINER BELL, BRUCE F	
			ART UNIT 1745	PAPER NUMBER
			MAIL DATE 09/20/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/501,279	Applicant(s) MOLOKOV ET AL.	
	Examiner Bruce F. Bell	Art Unit 1745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 6-16 is/are pending in the application.
- 4a) Of the above claim(s) 6-10 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 11-16 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 July 2007 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____ |

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DETAILED ACTION

1. Newly submitted claims 6-10 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: Claims 6-10 are directed to a method for stabilizing an electrolysis cell where as the original claims were directed to an electrolysis cell system. The search for the method is different from that of the search for the system.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 6-10 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Drawings

2. The drawings were received on July 10, 2007. These drawings are accepted.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 11-16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 11 is vague and indefinite with respect to the means for determining amplitude and frequency values of the magnetic field and the means for applying the magnetic field at the cell boundary. It is unclear from the claim as set forth whether the

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means of imposing the alternating magnetic field and the means for applying the magnetic field are the same means or not from the instant claim as set forth. Further, it is unclear as to whether the means for applying the magnetic field is applying any magnetic field or a magnetic field that is representative of the magnetic field having the amplitude and frequency found in the means for determining magnetic field through wave reflection analysis on the theoretical wall. Further, the claim is vague and indefinite with respect to the means for imposing on the cell an external "time-varying" magnetic field. The examiner can not ascertain from the instant specification what this means or any examples thereof. Applicant is invited to show the examiner where in the instant specification this can be found and can further clarify what is meant by this phrase.

Claims 12-16 are dependent on claim 11 and therefore have the same deficiencies.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 11-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Waldron (5240569) in combination with Lukanov et al (XP-0022265915).

Waldron disclose an electrolysis cell having two electrode surfaces wherein an electric current conducting means, energized by an electric power source and

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independent of the electrolysis circuit elements is arranged and constructed with respect to the cell to increase the average component of the magnetic field parallel to the mean electrode surfaces within the fluid electrolyte layer. This increase in the magnetic field is relative to the magnetic field due solely to the electrolysis current. See abstract. The cell may be a rectangular cell profile, in which the electrical source is independent of the source which provides the electrolysis current. The cell has a rectangular cross section that is enclosed by a multi-turn rectangular solenoidal coil, which allows generation of magnetic fields much higher than the field due to cell electrolysis current. The multi-turn coils for the electric current conducting means can be energized in series for a large group of cells to reduce the current requirements and improve the engineering advantages of high voltage and low current supplies. See col. 5, line 58 – col. 6, line 3. The coils can be separately energized and separately turned on or off during cell operation. For rectangular cell geometry, it is possible to have a single solenoid coil enclose two or more electrolysis cells either axially or laterally or conversely, to use several smaller solenoids to enclose a single electrolysis cell. See col. 6, lines 9-14. The magnetic fields can be deployed in a fashion to minimize the stray vertical magnetic fields or the non-uniformity of the horizontal fields by making such current carriers more nearly symmetrical with respect to the axis of the cells to minimize adverse effects due to the uneven or unwanted magnetic fields of the system. See col. 7, lines 14-21.

Waldron does not specifically teach a means for determining amplitude and frequency.

Lukyanov disclose the consideration of a reflection of a monochromatic plane wave from the plane boundary and reflection of rotating waves in a circular geometry. The document further discloses the use of a uniform external magnetic field to aid increasing the stability of the cell and that the magnetic effects are placed downwards from the anode through the fluids and is collected by the cathode on the bottom. The current supplied by the external circuit induces a magnetic field that affects the flow in the bath.

The subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the instant invention was made because even though the prior art of Waldron does not specifically teach a means for determining amplitude and frequency, Waldron does disclose that the direction of the current flow is selected to provide a magnetic field in the same direction as the field due to the electrolysis current and that with this arrangement it is possible to elevate the magnetic field to a value many times that of the field of the cell electrolysis current. This is useful with small electrolysis cells. Further coils may be thermally insulated and constructed of superconducting materials to provide high magnetic fields with out power consumption. The coils can be separately energized and separately turned on or off during cell operation. Therefore, it appears that Waldron does teach applying an alternating field and then measuring this field to apply another magnetic field. However, if this is not the case then the prior art of Lukyanov teaches that there is a need to satisfy or balance specific boundary conditions that results in amplification of waves. Should this be the case, one having ordinary skill in the art would realize that in order to balance the

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system that one would have to measure the magnetic field by some means and since magnetic waves are a resultant of amplitude and frequency, one having ordinary skill in the art would know that the amplitude and frequency should be measured to yield an effective magnetic field of the same amplitude and frequency to balance or stabilize the effect on the cell wall. Therefore, the prior art of Waldron in combination with Lukyanov render the applicants instant invention obvious for the reasons set forth above.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bruce F. Bell whose telephone number is 571-272-1296. The examiner can normally be reached on Monday-Friday 6:30 AM - 3:00 PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

BFB
September 12, 2007


Bruce F. Bell
Primary Examiner
Art Unit 1745